The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 33. AUGUST 13, 1932. VOL. 12.

ROYAL SANITARY INSTITUTE CONGRESS AT BRIGHTON

(FROM OUR OWN CORRESPONDENT)

The Clerk of the Weather entered into a happy conspiracy to give a pleasant send-off to the forty-third Annual Congress of the Royal Sanitary Institute, which was held at Brighton from July 9th-16th, 1932. The delegates began to assemble on July 9th in glorious weather, which was maintained for four days, and the visitors from overseas were able to appreciate what Southern England can be like in July.

Needless to say, the members of the Congress were in a contented frame of mind when, on Monday the 11th, Lord Leconfield, the President of the Congress, delivered his inaugural address in the Prince's Hall of the Aquarium before a large audience.

His Lordship, who was supported by the Chairman of the Council of the Institute and other leading members, was well qualified, as Chairman of the West Sussex County Council, to speak on public health matters, and his address was marked by his appreciation of the problems of local government authorities in these times, which, he said, were a national responsibility and must not be allowed to suffer any setback. We were reminded of the growth of the Institute and the importance of its Congress by the fact that whilst there were 420 delegates at the last Congress held at Brighton in 1910, 850 delegates were registered at the present gathering, and 1,200 people were expected to attend the meetings. A glance at the list of delegates shows that the Home Government, Dominion and Colonial Governments, 13 foreign governments, the League of Nations, and a large number of county and municipal authorities and learned societies are represented, but it was disappointing to find only 14 veterinary surgeons as official delegates, of whom only five represented local authorities. No doubt the prevailing wave of economy on the part of local authorities is to some extent responsible for this, but it is hoped that in future years veterinary science will be more cordially recognised as an important part of public health administration, and that veterinary officers will be officially sent by their respective authorities to take part in the discussions on public health matters.

The veterinary surgeons whose presence was noted by your Correspondent were Mr. J. W. Pritchard, M.R.C.V.S., and Captain W. Burt, F.R.C.V.S., Brighton (Local Secretaries); Mr. H. Begg, F.R.C.V.S., Lanarkshire C.C.; Major W. J. B. DeVine, F.R.C.V.S., Birmingham; Major E. J. Burndred, M.R.C.V.S., Blackburn; Captain F. W. Medlock, M.R.C.V.S., Surrey C.C.; Captain R. Simpson, F.R.C.V.S., D.V.S.M., Cumberland C.C.; Major F. L. Gooch, F.R.C.V.S., Stamford; Mr. J. L. Frood, M.R.C.V.S., Ministry of Agriculture and Fisheries; Lieut.-Colonel T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M., F.R.SAN.I., Central Markets, Smithfield (representing the N.V.M.A.); Mr. H. E. Bywater, M.R.C.V.S., West Ham (representing the Central Veterinary Society); Mr. A. Alexander, M.R.C.V.S., D.V.S.M., Salford; Professor J. Share-Jones, F.R.C.V.S., D.V.SC., M.SC., Liverpool; Major T. Dalling, M.R.C.V.S., Beckenham, Kent; Mr. W. Jackson Young, F.R.C.V.S., D.V.S.M., Ministry of Agriculture and Fisheries, Newcastle-upon-Tyne; Mr. J. R. Hayhurst, M.R.C.V.S., D.V.S.M., Islington; and Lieut.-Colonel J. A. Dixon, M.R.C.V.S., Leeds (Recording Secretary).

After suitable expressions of thanks had been accorded to the President by Sir Francis E. Fremantle, O.B.E., M.P., Councillor Violet M. C. Robertson, of Glasgow, and representatives of the U.S.A., India, and local authorities, we proceeded to the opening of the Health Exhibition where were displayed all kinds of sanitary appliances, hospital and domestic furnishing, disinfectants and food preparations. Regarding these last, the veterinary surgeon could not fail to be impressed with the marked progress made by pasteurised milk. This is a subject of intimate concern to us, and it is high time the veterinary profession took serious notice of this matter, not only by members stating their views on it but by taking energetic steps to instal ourselves as the controlling officers over the whole subject of the production, treatment and distribution of milk.

Tuesday was not of especial interest for veterinary delegates, the subjects for discussion being cancer, hygiene in industry, the relative advantages of electricity and gas for domestic use, and the disposal of house refuse.

On Tuesday evening the Congress was entertained by the Mayor of Brighton at a reception and ball attended also by a number of prominent local people. It was a brilliant occasion, the Royal Pavilion being filled to capacity, and it provided an opportunity for meeting a considerable number of veterinary surgeons not previously encountered.

Wednesday morning's meetings offered nothing of interest to veterinary surgeons as

DEPT. OF VET. MEDICINE

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such, but as ice cream is so closely related to dairy products it has become a subject of interest to a few public health veterinarians, and your correspondent attended the Conference of Sanitary Inspectors, at which control of the production of ice cream was discussed. The paper was interesting in explaining the various methods of manufacture of the commodity. Here again pasteurisation was strongly in evidence, and some interesting facts relating to the bacteriology of ice cream were related. The Conference was strongly of the opinion that the manufacture of ice cream should only be allowed under conditions approved by the local sanitary authority, and on premises registered for that purpose, and a suitable standard for ice cream, requiring 8 to 10 per cent. of butter fat, was urged. This point indicates how closely ice cream is associated with milk, and thus with veterinary public health work.

In the evening Professor Winslow, of U.S.A., gave a popular lecture on current tendencies in American Public Health, and, as would be expected, the pasteurisation of milk received special notice. Dr. Winslow observed that in the basic field of environmental sanitation and the control of food supplies, our chief difference seemed to appear in our attitude toward the pasteurisation of milk.

The recent report of President Hoover's White House Conference on Child Health and Protection had called forcible attention to the grave dangers which still inhered in raw milk supplies. During the six years, 1924 to 1929 inclusive, there were recorded 258 milk-borne epidemics, resulting in 10,906 cases of disease and 371 deaths. Tuberculosis of the bovine type in children had been practically eliminated from the larger cities, but was still common in rural areas where raw milk was used. In addition to the long-familiar hazards of typhoid fever, scarlet fever, and septic sore throat, we must add undulant fever and poliomyelitis to the list of possible dangers. With every passing year the evidence grows stronger that no other procedure than heating could possibly guarantee safety, and that no raw milk was ever a reliable source of supply.

Secondly, exhaustive studies had been made by L. C. Frank, of the United States Public Health Service, on the actual operation of pasteurisers of the standard thirty-minute holding type, which had clearly indicated the dangers of imperfect pasteurisation due to faulty construction and operation, and had shown how those dangers could be avoided. By the use of proper valves, agitation devices and thermostatic control, and provision for avoiding dead spaces and for heating air and foam, it was possible to make certain that no drop of milk should deviate by more than 1° from the desired temperature throughout the holding period.

Finally, the work of C. A. Holmquist, of the New York State Department of Health, had demonstrated that high-temperature short-time pasteurisation was also an efficient and reliable process. The " flash-pasteurisation " introduced during the first decade of the present century was very properly discredited on account of its proved unreliability. The newer processes, which heated the milk to 160° F. for 20 seconds, some of them using electricity and some hot water as the heating agent, yielded very different results. Both types were found by competent health authorities (when constructed and operated under definitely outlined conditions) to be fully as reliable as the holding processes.

The White House Conference studies showed that in 186 cities with a population of 41,000,000 people, 80 per cent. of all milk was pasteurised in 1929. In fifteen large cities it was now required that all milk, even that of certified grade, must be pasteurised. That, in Dr. Winslow's view, was the ideal to which we should look forward for all communities in the future.

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PROCEEDINGS OF SECTION F.—VETERINARY HYGIENE

On Thursday the veterinarian became really interested, as the Veterinary Hygiene Section opened on that day with a splendid presidential address by Alderman Sir William Phené Neal, in which the President paid eloquent tribute to veterinary science for its work in controlling human as well as animal disease. He also mentioned the humane slaughtering of animals for food, and the need for the abolition of private slaughterhouses, and in conclusion gave a brief but interesting resumé of the history of the British veterinary profession. He observed that many veterinary officers failed to receive adequate recognition for their services because many members of city and town councils were not conversant with the multiple and important duties of veterinary officers, and it was gratifying to hear the President urge the maintenance of the Royal Veterinary College, in a satisfactory condition, as a matter of interest to the whole public. The text of the President's address was as follows:—

Presidential Address

ALDERMAN SIR WILLIAM PHENÉ NEAL, Bt.

With so many eminent veterinarians present it is with diffidence that I occupy the Chair of this very important Section of Veterinary Hygiene. I am, as you know, only a layman, but I do claim that one of my greatest interests for many years has been the work of the veterinary profession, particularly in so far as it

relates to public health matters, and I can assure you that I deem it a very great honour to have the privilege of presiding over this section for the second time. Such has been my experience among members of your profession that I know I shall receive your fullest support in making this section a success.

As most of you are aware, my association with the activities of your profession is one of long standing. I have been an active member of the Cattle Markets Committee of the Corporation of London since 1893, and I am proud of the part it was my duty to play as Chairman of that Committee in bringing about the removal of the embargo on Canadian cattle in 1922.

In 1923 I also had the honour of presenting to a Conference of veterinary officials at the Royal Sanitary Institute a paper on the subject of tuberculosis in cattle and the desirability of allowing the introduction of breeding heifers from Canada into this country.

So far as this annual conference is concerned, I have had the honour of attending as a delegate of the Corporation of London regularly for the past twelve years, and I have watched with considerable interest the many and varied subjects which have been discussed. In the light of this experience I have no hesitation in saying that, in my opinion, the proceedings of these conferences have played an important part in the progress of veterinary science and the many reforms which have taken place, not only to bring about the co-operation of the veterinary profession in the administration of public health matters, but also in influencing legislation for the improvement of public health conditions.

Of the many subjects which come within the province of the veterinary profession I would mention three which have received the closest attention from your conferences. They are meat inspection, milk inspection, and the humane slaughter of animals.

I need hardly emphasise the importance of the adequate and proper inspection of meat and milk from the point of view of public health, but I would emphasise the important part these annual conferences have played in bringing about the present high standards of control and inspection of these vital necessities of life, and I think the people are indebted to veterinary surgeons and to the Royal Sanitary Institute for the measure of protection they are now afforded against the consumption of diseased meat and milk.

There can be no doubt that this annual conference did much to bring about the appointment of the Departmental Committee on Meat Inspection in 1921, which was instrumental in promoting the reforms in meat inspection long overdue. As a representative of the Corporation of London, I, together with the two chief veterinary officers, gave evidence before that Committee, and I have been able to observe the vast improvements in the methods of inspection brought about by the recommendations.

As a member of the Council of the Corporation of London, I am able to say that during recent years we have employed more than double the staff of veterinary and meat inspectors at the Metropolitan Cattle Market necessary to meet the requirements of the regulations. The cost of the officers for meat inspection is, of course, secondary to a high standard. A full staff of inspectors provides not only for a complete inspection of meat, but it also ensures that the inspection of live animals can be carried out regularly for the detection of diseases such as foot-and-mouth disease, anthrax, swine fever, sheep scab, and as a help to other diseases in *post-mortem* examinations. It also ensures a strict supervision with regard to cruelty in its many forms, adequate feeding and watering of animals in the market and lairages before slaughter, and the cleansing and disinfection of vehicles for animals made under the Public Health (Meat) Regulations and other Orders. Such improved methods please me because the many reforms I have mentioned are so progressive, and I hope that in the near future the resolution I put forward at Newcastle in 1919, which was carried, and has almost every year since been reaffirmed, will be embodied in future legislation. The resolution was as follows:—

> "That in the interests of public health no satisfactory improvement can be expected in the inspection of meat unless the Ministry of Health take the necessary steps to abolish all private slaughterhouses in Great Britain and Northern Ireland, and that unless fully qualified persons well versed in meat inspection are appointed to carry out the efficient inspection of all animals slaughtered for human consumption, the inhabitants of this country will continue to consume considerable quantities of diseased, unsound, and unwholesome food.
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> "We urge that *ante-mortem* and *post-mortem* inspection should in all cases be made, and recommend that the Council of the Institute make representations to the Ministry of Health and the Department of Health, Scotland."

The Corporation of London has always recognised the importance of the work of its veterinary officers. It has encouraged the teaching of meat inspection at the Royal Sanitary Institute, the Royal Veterinary College, and many other institutions by their officers, and has permitted them to serve on the Board of Examiners of the Royal Sanitary Institute, and last year permitted Mr. Hayhurst to act as Chairman of the Examination Committee and Chairman of the Board of Examiners at the Royal Sanitary Institute.

I am of the opinion that many local authorities in many cities and towns recognise the good work of their veterinary surgeons and certified meat inspectors, but I am sorry to say that others do not receive the recognition they deserve, chiefly because the members of city and town councils are not conversant with their multiple and important duties.

I can assure you that in my study of the duties performed by veterinary officers and certified meat inspectors, I have become amazed at their extent and variety, and I would urge councillors to study these questions more closely and so enable them to appreciate the importance of their work.

Turning to the subject of the humane slaughtering of animals, while it must be admitted that progress has been made through the persistent efforts of veterinary surgeons and the Royal Society for the Prevention of Cruelty to Animals, the matter has yet to be brought to a successful conclusion by making the use of mechanical slaughtering instruments compulsory throughout England and Wales. As far back as 1921 this matter was the subject of discussion in your Conference at Folkestone, and I was associated with Professor Hobday in moving a resolution:—

> "That renewed efforts be made to provide humane, safe, and effective instruments for the slaughter of all classes of animals used for human food, and that the matter be brought up again at the next year's Conference."

Again, in 1928, the Conference passed the following resolution:—

> "That this meeting of veterinary surgeons, meat inspectors, and others, are of opinion that the Ministry of Health should be requested to make mechanical slaughtering compulsory throughout the country."

This resolution embodied the same principle which since 1926, when it thoroughly considered the whole matter, the Corporation of London has consistently upheld. At the moment about 25 per cent. of local authorities in England and Wales have adopted the model bye-law of the Ministry of Health which makes the use of mechanical slaughtering instruments compulsory, and we therefore contend that this is the remedy.

The Corporation of London is pursuing its policy in giving every support to the Humane Slaughtering Bill now before Parliament. The Bill not only provides for the compulsory use of mechanical slaughtering instruments, but also includes other desirable reforms in connection with the slaughter of animals, and as a very keen supporter I desire to appeal to all local authorities to give the Bill every support through their Members of Parliament and so follow the lead which the Corporation of London has given.

I do feel that if this is done the compulsory use of mechanical slaughtering instruments will have become law by the time this section meets again next year, and thus we shall have the satisfaction of seeing the many efforts which have been made through this annual Conference to secure the reform, brought to a successful conclusion.

With the knowledge of the Slaughter of Animals Bill just mentioned, and the fact that Jewish slaughtering is excepted therefrom, you will be interested to know that the subject of improving their methods of casting animals prior to slaughter has for long received the closest attention from the Jewish Board of Shecheta.

The result has been the invention and perfection of the Weinberg Casting Pen for cattle, which is considered to be a great improvement on previous methods of casting and consequently more humane.

As the Metropolitan Cattle Market is the largest centre for Jewish slaughtering, the Board of Shecheta has always sought the assistance of the Corporation of London in these matters, and they have always afforded facilities for trials of new apparatus as they did in the case of the Weinberg Pen. I am now pleased to be able to inform you that the Cattle Markets Committee have recently given permission for the installation forthwith of the Weinberg Pens in every cattle slaughterhouse at Islington, thus helping to institute one more reform to promote the humane handling of animals.

THE HISTORY OF THE BRITISH VETERINARY PROFESSION

While taking an active interest in agriculture, markets, and abattoirs, I have been brought into personal contact with many members of the veterinary profession, especially those engaged in public health work, and lately my attention has been directed to the struggle being made by the Governors of the Royal Veterinary College of London to rebuild their school at Camden Town and to equip it so as to be at least equal to any similar school in other countries. This has led me to look into the history of the profession so far as it concerns this country, and I am more than surprised that we have any veterinarians considering the struggle the profession has had since its inception to maintain colleges, teach students, hold examinations, grant diplomas and keep abreast of progress in modern science with practically no assistance.

It would take too long to describe the details of that struggle, and to members of the profession they are doubtless well known, but there are certainly many here to-day who have little, if any, idea of these self-sacrifices that have been made continuously over a long period of years to attain results of which those who have done so may well be proud.

Through the kindness of Dr. Bullock, Secretary of the Royal College of Veterinary Surgeons, I have obtained some interesting historic details. It appears that prior to the year 1791, the losses from animal plagues in this country were enormous, death and destruction caused losses at the rate of 14,000 animals per month, and farmers had no one to turn to for advice. There were so-called "horse doctors," or hereditary doctors with whatever knowledge they possessed handed down from father to son. There were farriers and cowleeches, and occasionally a medical practitioner, who interested themselves in animals, but scientifically trained veterinarians did not exist.

In the year 1789 a Frenchman named Charles Vial de St. Bel published proposals for the establishment of a veterinary school in London, and having obtained financial support from a number of noblemen and gentlemen, the school was opened in 1791. Unfortunately, St. Bel died in the following year, and if it had not been that a few prominent medical men, whose interest in the school had been secured by the advocacy of the great John Hunter, the school could not have survived that blow. The veterinary students were admitted free to the class-rooms of the medical teachers, and for this timely assistance the veterinary profession will always be grateful. For a few years the government of the day made a small annual grant, but this was soon stopped, and until only a few years ago the school had to rely on its own resources, in striking contrast to the continental schools, which almost from the beginning have been recognised and assisted as government institutions.

Still, *malgré* all the difficulties, progress was made, and the demand for trained veterinarians was such that students increased in numbers, and another school was opened in Edinburgh in 1823.

Forty years later another school was opened in Glasgow, and in 1873 a second school was opened in Edinburgh; the latter establishment was transferred to the University of Liverpool in 1904. In 1900 a veterinary school was opened in Dublin and now forms part of the Educational Department of the Ministry of Agriculture of the Free State of Southern Ireland. Therefore there are at present five veterinary schools authorised by Royal Sign Manual, *i.e.*, one each in Edinburgh, London, Liverpool, Glasgow and Dublin.

I note one very important and interesting feature, *viz.*, that, unlike the medical, there is only one port of entry into the profession.

The Royal College of Veterinary Surgeons frames the subjects for teaching, appoints the board of examiners, and grants the diplomas for all the schools, thus securing uniformity.

At first the recognised course of training was that of two years. In 1876 a three years' course was adopted, and in 1895 the standard of educational entrance examinations was raised to that recognised by the General Medical Council for medical students. At the same time the course of professional training was increased to four years.

At present a five years' course has been adopted, with an additional year for taking the B. Sc. and D.V.S.M. Diplomas; the latter is a special diploma for those who desire to enter public health service. The former is generally taken by those who desire to carry out research work.

Graduates generally find occupations in:—

(*a*) The Royal Army Veterinary Corps.
(*b*) The Ministry of Agriculture.
(*c*) Research Institutes for animal diseases.
(*d*) Overseas Dominions.
(*e*) General practice.
(*f*) Public health work for city and county councils.

It is with officers of the last mentioned I am more concerned to-day. I find that forty years ago such officers were practically non-existent. The late Professor Walley, of the Royal (Dick) College, Edinburgh, as a result of observing the important work performed by veterinarians as public health officers on the continent, began to specialise in teaching his students the subject of meat inspection.

He wrote a book as a guide to meat inspectors and induced the City of Edinburgh to appoint veterinary meat inspectors, one of whom, the late Mr. J. King, ultimately became the City Corporation's veterinary officer at the Metropolitan Cattle Market and assisted in establishing the now well-known classes in the Royal Sanitary Institute for meat inspectors.

Since then similar appointments have been made in nearly all large towns in connection with meat and milk supplies. Many county councils have also appointed veterinarians in connection with the Tuberculosis Orders, inspection of cows under the Milk and Dairies Order, contagious diseases, etc.

I observe that at present out of 3,393 Fellows and Members on the register of the Royal College of Veterinary Surgeons there are about 332 engaged in state veterinary medicine in Great Britain and Ireland. These numbers, though greatly increasing, should have been greater, for it is recognised that veterinarians are, by virtue of their training, best qualified to have the care of animals, also to make *ante-mortem* and *post-mortem* examinations. The latter work is entrusted to them all over the world, and all meat imported into this country bears stamps or labels indicating the veterinarians responsible for the soundness and freedom from disease of the article.

The hindrance to more public appointments

being made has been, and still is, a legislative one, and here I submit that the members of the veterinary profession appear to have themselves to blame because when the Public Health Acts were framed they omitted to secure their names being included along with the other officers given power to act under the meat and food sections. They did secure that power in the Public Health (Scotland) Act, but again omitted to do so in the Public Health (London) Act. The Departmental Committee on Meat Inspection recognised this difficulty and recommended that it should be remedied, which we hope will be done when the present Public Health Acts are revised.

When this is proposed, the Royal College of Veterinary Surgeons must take the necessary steps to secure their unquestionable position in public health work, and it is gratifying to note that Medical Officers of Health are willing to assist them in doing so.

Veterinarians have performed valuable work in the elimination from this country of such diseases as rinderpest, rabies, glanders, etc., but there is still much more for them to do so as to free, as far as possible, our herds from disease to the benefit of agriculturists.

I have often expressed my views on meat and milk cow inspection, both of which, judged by the records in the City of London, are in many areas undoubtedly inefficient, for up to 26·3 per cent. of milk samples have been found to show tuberculosis infection, and hundreds of tons of diseased meat taken from country consignments have been seized in Smithfield Market since the Public Health (Meat) Regulations, 1924, came into force.

As yet we have not obtained all we desire, but there is only one way to do so and that is to keep trying until we do get the reforms required. I, therefore, once more advocate:—

(*a*) The abolition of private slaughterhouses wherever practicable in favour of public abattoirs.

(*b*) Where it is impracticable to abolish private slaughterhouses then they should be concentrated and reduced in number by combined slaughtering.

(*c*) Veterinary inspection of all animals in markets and fairs.

(*d*) All animals to be examined *ante-mortem* and *post-mortem* by veterinary officers assisted by certificated meat inspectors.

(*e*) All inspected meat should bear stamps similar to those found on imported milk.*

(*f*) Compulsory examination of all milk cows at stated periods, with power to deal with all diseased or suspected animals associated with bulk testing of milks for tuberculosis.

In order to attain these objects it is necessary that due recognition be given to the improvements of veterinary training; that the money necessary for the rebuilding of the Royal Veterinary College, London, be obtained and funds provided for the continuation of efficient training to future students.

In concluding my remarks, I would like to express the hope that we shall all have a happy and successful meeting, and that the discussions will result in carrying us one step further in this important branch of public health work.

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Thanks were expressed to the President for his address by Alderman Williamson, Chairman of the Cattle Markets Committee of the City of London, seconded by Major DeVine, F.R.C.V.S., and, after the meeting had supported this expression we proceeded to the paper on "The Law Relating to Meat Inspection." Major DeVine introduced his subject, emphasising and enlarging upon some of the points in the printed paper, which contains some important material and was well received.

The Law Relating to Meat Inspection

MAJOR BRENNAN DeVINE, M.C., F.R.C.V.S., D.V.S.M.
Chief Veterinary Officer, Birmingham

In presenting this paper to you for your consideration and discussion, I do not pretend to attempt to deal fully with the subject, but only to touch on some of the more important points as they affect meat inspectors. The principal Acts and Orders applicable to meat inspection now in force in this country are as follows:—

The Towns Improvements Clauses Act, 1847: Section 131.
The Markets and Fairs Clauses Act, 1847: Section 15.
The Public Health Act, 1875: Sections 116 to 119.
Public Health Acts (Amendment) Act, 1890: Sections 28 and 31.
Public Health Act, 1925: Section 72.
Public Health (London) Act, 1891.
Public Health (Scotland) Act, 1897.
Sale of Horseflesh, etc., Regulation Act, 1889.
Public Health (Regulations as to Food) Act, 1907, and the Foreign Meat and Unsound Food Regulations made thereunder.
The Merchandise Marks Acts, 1887 and 1926.
Public Health (Meat) Regulations, 1924.
The Sale of Food Order, 1921.

* The cost of inspection is often set up as a defence or a difficulty as to meat inspection being satisfactorily performed in scattered areas. The remedy appears to be to charge a small sum for each animal examined, as is done in some countries, *e.g.*, South America.

The Importation of Carcasses (Prohibition) Order of 1926.
The Tuberculosis Order, 1925 (Diseases of Animals Acts).
Anthrax Order, 1928 (Diseases of Animals Acts).
Swine Fever Order, 1908 (Diseases of Animals Acts).

The control of the meat supply is much more advanced in other countries than in this. The laws in France, Belgium, Holland, Denmark and Germany and other European countries, are carefully framed to protect the consumer against unfit meat, and the meat inspection is so regulated that all animals are examined by veterinary inspectors both *ante-* and *post-mortem*. The meat inspection in Scotland is being developed on similar lines. In the interests of public health the laws and system in respect of meat should be so framed and established as to ensure completely perfect safety for the consumer.

The law as at present established in this country is unnecessarily spread out over many Acts and Orders and is, consequently, unwieldy and complicated, and, owing to some Acts being adoptive, it is not uniform throughout the country.

It is essential that any official engaged in meat inspection should have a working knowledge of the laws affecting his own particular branch of public health work, as conditions often arise in practice when a knowledge of the law is necessary, not only for one's own protection, but for the efficient carrying out of one's duty.

Previous to 1875, the law relating to public health was covered by several Acts and Orders which, in general use, were found unwieldy and, in some cases, indefinite, and often found deficient in sections or clauses applicable to the prevailing conditions. One of the aims of the Public Health Act of 1875 was to consolidate the whole of the law of public health under one Act. Notwithstanding the passing of the 1875 Act, we must not lose sight of the fact that the Towns Improvement Clauses Act of 1847 and the Markets and Fairs Clauses Act, 1847, are still in force.

The Towns Improvement Clauses Act contains several important sections relating to meat and slaughterhouses. Section 131 provides that:—

"The inspector of nuisances, the officer of health, or other officers appointed by the commissioners for that purpose, may at all reasonable times, with or without assistants, enter into and inspect any building or place kept or used for the sale of butcher's meat, or for slaughtering cattle, and examine whether any cattle, or the carcass of any such cattle, is deposited there, and in case such officer shall find any cattle, or the carcass or part of any beast, which appears unfit for the food of man, he may seize and carry the same before a justice, and . . . in case upon . . . examination such cattle, carcass, or part of a carcass, be found unfit for the food of man, such justice shall order the same to be immediately destroyed or otherwise disposed of, in such a way as to prevent the same being exposed for sale or used for the food of man, and the justice may adjudge the person to whom such cattle, carcass, or part of a carcass belongs, or in whose custody the same is found, to pay a penalty not exceeding ten pounds for every such animal, etc., so found."

The Markets and Fairs Clauses Act, 1847, contains the important Section 15, which provides:—

"That every person who shall sell or expose for sale any unwholesome meat or provisions in a market or fair shall be liable to a penalty not exceeding five pounds for every such offence."

These statutes were passed to protect the public from purchasing and consuming unwholesome and diseased food.

The Merchandise Marks Act, 1887, makes it a criminal offence to apply any trade mark to goods other than those to which a particular trade mark should properly be applied. This Act was passed to prevent the purchaser being deceived. Under this Act it is an offence to describe imported mutton as English or to describe meat from one country as coming from another, *e.g.*, Chilian or New Zealand mutton described as Australian, etc.

PUBLIC HEALTH ACT, 1875

The portion of the Public Health Act, 1875, relating to the condemnation and seizure of food is contained in a few sections, *viz.*, sections 116 to 119. The object of these sections, which are the most important of all the legal enactments relating to the meat trade, is to protect the consumer from the dangers of unwholesome and diseased meat.

The Public Health Act, 1875, ss. 116 to 119:—

"Section 116.—Any Medical Officer of Health or Inspector of Nuisances may at all reasonable times inspect and examine any animal, carcass, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale, and intended for the food of man, the proof that the same was not exposed, or deposited for any such purpose, or was not intended for the food of man, resting with the party charged; and if any such animal, carcass, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour or milk appears to such Medical Officer or Inspector to be diseased or unsound or unwholesome, or unfit for the food of man, he may seize and carry away the same himself or by an assistant, in order to have the same dealt with by a Justice.

"Section 117.—If it appears to the Justice that any animal, carcass, meat, poultry, game, flesh, fish, fruit, vegetables, corn, bread, flour, or milk, so seized is diseased or unsound or unwholesome or unfit for the food of man, he shall condemn the same and order it to be destroyed or so disposed of as to prevent it from being exposed for sale or used for the food of man; and the person to whom the same belongs or did belong at the time of exposure for sale, or in whose possession or on whose premises the same was found, shall be liable to a penalty not exceeding twenty pounds

for every animal, carcass or fish, or piece of meat, flesh or fish, or any poultry or game, or for the parcel of fruit, vegetables, corn, bread, or flour, or for the milk so condemned, or at the discretion of the Justice, without the infliction of a fine, to imprisonment for a term of not more than three months. The Justice who, under this section, is empowered to convict the offender may be either the Justice who may have ordered the article to be disposed of or destroyed, or any other Justice having jurisdiction in the place."

It is remarkable that these sections of the Public Health Acts relating to meat are so one-sided, and that they give every opportunity to the inspector to seize meat and have it condemned, but there is no provision to protect the owner of meat against the inefficient judgment or vindictive action of an inspector. The inspector has to submit the meat to a justice of the peace for an order for its destruction. The justice of the peace is not supposed to understand whether the meat is sound or unsound. He is told by the inspector it is unsound and unfit for human consumption and he signs the order for destruction. The inspector must then take it away and have it immediately destroyed. The owner may have no opportunity of bringing experts to examine the meat on his behalf.

The provisions of the Birmingham Corporation Act, 1914—and I have no doubt similar provisions are made in the private Bills of other municipalities—entitle the person in whose custody or possession the animal or foodstuff liable to be condemned was at the time when it was inspected, to attend the proceedings before the justice of the peace, with any witnesses he may bring along, at the time the order is being signed by the justice. This gives an opportunity for the person charged to bring along experts to examine the suspected foodstuff on his behalf.

There is another very grave shortcoming in these Public Health Acts in that an inspector may proceed against a person in whose possession the meat is found, but when the meat or animal has passed through one or more hands possibly on the same day, there is no provision made to proceed against the original vendors. The London Public Health Act, 1891, and the Birmingham Corporation Act of 1914, provide that the local authority may proceed against the original vendors as well as the person on whose premises or in whose possession the foodstuff is found. Where there are no provisions made to proceed against the original vendor, the retailers may be proceeded against for being in possession of the meat, and though he may be entirely innocent, and the wholesaler or the original vendor from whom he purchased it may be the greater offender, proceedings cannot be taken against the latter, and so the greatest culprit in the case gets off scot free.

In order that the desired results, for which these Acts are intended, may be attained, it is essential that clauses should be embodied in the Acts, empowering local authorities to take proceedings against the original vendors in those cases where it can be proved they sold the unfit animal or meat.

Section 116 deals with power to inspect by the medical officer of health or inspector of nuisances, any animal. This does not comply with modern views such as are found in the Public Health (Scotland) Act, 1897, where provision is made that a veterinary surgeon shall examine any animal under this section, as follows:—

"Provided that in the case of any proceeding under this section with regard to a living animal the medical officer or sanitary inspector, unless he is himself a qualified veterinary surgeon, shall be accompanied by a veterinary surgeon approved as aforesaid."

This clause rightly recognises that the only qualified person to examine an animal is the veterinary surgeon.

There are two further great defects in these sections:—

(*a*) Eggs, butter, cheese and other important articles of food are not specifically mentioned;

(*b*) That no proceedings can be taken with respect to articles already sold.

In order to overcome these defects all articles for human food are included in Section 28 of the Public Health Acts (Amendment) Act, 1890. The 1890 Act is an adoptive one, and is, therefore, only in force when its provisions have been adopted by the local authority in any sanitary district. Where this Act has been adopted Section 28 extends Sections 116 to 119 of the 1875 Act. The Public Health Act (Amendment) Act, 1890, Section 28, reads as follows:—

"(1) sections 116 to 119 of the Public Health Act, 1875 (relating to unsound meat), shall extend and apply to all articles intended for the food of man sold, or exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale, within the district of any local authority.

"(2) a justice may condemn any such article and order it to be destroyed or disposed of as mentioned in Section 117 of the Public Health Act, 1875, if satisfied on complaint being made to him that such article is diseased, unsound, unwholesome, or unfit for the food of man, although the same has not been seized as mentioned in Section 116 of the said Act."

QUALIFICATIONS OF MEAT INSPECTORS

Section 116, Public Health Act, 1875, provides that only the medical officer of health or sanitary inspector may seize food under this Act.

By Section 189 of the Public Health Act, 1875, every urban sanitary authority is given power to appoint their officers, and under Section 190, every rural sanitary authority is given similar powers.

A person may not be appointed a medical officer of health unless he is a legally qualified medical practitioner, but no special qualifica-

tions have been declared to be necessary for the appointment of a meat inspector. It is found in practice, particularly where there are large abattoirs, that the first-mentioned officer, the medical officer of health, who is responsible for numerous and diverse duties, which increase annually owing to increased Orders of the Ministry of Health and other bodies—duties which call for his individual personal attention—has not the time or the opportunity to attend to actual work of meat inspection. The duties in connection with the seizure of meat are left to the inspector of nuisances, and under this Act no special provisions are included that he shall have special training, qualifications or experience. Under present conditions a local authority may appoint any person as an inspector of nuisances and thus, under the 1875 Act, invest them with powers of inspection and seizure.

Many local authorities have recognised that the veterinary surgeon, owing to his long training in pathology and bacteriology, diseases of animals, as well as his clinical training with living animals, possesses the requisite technical knowledge and is suitably fitted to act as an expert meat inspector, and have appointed veterinary surgeons specially for those duties.

Under the Public Health English Meat Regulations, 1924, which were made under the Public Health (Regulations as to Food) Act, 1907, an inspector means the medical officer of health or any other officer of a local authority having, under the Acts relating to public health or any local Act, power to inspect and examine meat intended for the food of man.

This is all most indefinite, and it appears to me that it is only right that the interests of the meat traders and food vendors should be protected by having appointed only such persons as have been suitably trained and have passed proper examinations in connection with these subjects, and not such persons whose only qualifications are that they have been assisting surveyors or architects, or have had twenty-five years' experience as a village policeman.

Under the Public Health (Meat) Regulations of Scotland, 1924, made by the Scottish Board of Health, the instructions as to who should be appointed as an inspector are very definite. No person shall be qualified to act as a meat inspector under these regulations unless he is either the medical officer of health of the district or a veterinary surgeon, or a person who, not being the medical officer of health or a veterinary surgeon, has received special training in the work of meat inspection, and prior to the 1st day of June, 1923, had not less than seven years' practical experience in that work and has obtained from the Board a certificate (which may at any time be cancelled or withdrawn) that he is qualified to act as meat inspector in the execution of these regulations.

No person shall be qualified to act as a detention officer under these regulations unless he has had such experience and training as the meat inspector of the district may consider necessary to enable him to recognise any departure from the normal in the carcass, organs or viscera of an animal.

From this we see that the inspection of meat in Scotland is treated more seriously than in many districts in this country—only fully qualified men are allowed to act. Very definite instructions are laid down in the Regulations for the guidance of the inspectors and detention officers. Most, if not all, of the latter hold the certificate as meat detention officers of the Royal Sanitary Association of Scotland.

POWERS OF INSPECTOR TO ENTER PREMISES AND INSPECT MEAT

Under the Public Health Act of 1875, an inspector can only get power to enter premises by obtaining a warrant from a justice of the peace, which procedure, of course, is ungainly and very often impracticable, owing to the unavoidable delays.

Under the Towns Improvement Clauses Act of 1847, section 131, the medical officer of health and inspector of nuisances have power to enter into and inspect any building or place whatsoever kept or used for the sale of butcher's meat or for slaughtering cattle, but this is only applicable where the Act has been adopted.

If an inspector unarmed with a search warrant were to enter premises in which there was no meat at the time of entry, he would be guilty of a technical trespass if he dealt with food other than butcher's meat. The sanitary inspector is a servant representing the local authority, which is liable for damage or any legal act done by him within the scope of his employment.

Under the Public Health (London) Act of 1891, power of entry by an inspector of foods is much wider. Under this Act, an inspector has much greater authority than under the general Act. By section 47, sub-section 1, the medical officer of health or the sanitary inspector may enter any premises at all reasonable times, and inspect and examine:—

(*a*) any animal, intended for the food of man which is exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale, and

(*b*) any article, whether solid or liquid, intended for the food of man, and sold or exposed for sale, or deposited in any place for the purpose of sale, or of preparation for sale;

the proof that the same was not exposed or deposited for any such purpose or was not

intended for the food of man, resting with the party charged; and if any such animal or article appears to such medical officer or inspector to be diseased, or unsound, or unwholesome, or unfit for the food of man, he may seize and carry away the same himself or by an assistant, in order to have the same dealt with by a justice.

Under the Public Health (Meat) Regulations of 1924, more extensive powers are given to a local authority in that the medical officer of health, the sanitary inspector or any other officer of a local authority or port sanitary authority duly authorised by the authority in writing shall for the purpose of ascertaining whether these Regulations are being observed have power at all reasonable times to enter and inspect any slaughterhouse, room or other place and any stall or vehicle to which these Regulations apply.

UNIFORMITY OF INSPECTION

Previous to the introduction of the Memorandum on Meat Inspection issued by the Ministry of Health, much confusion existed in this country as regards the standard of inspection, and what was and was not to be passed as fit for human consumption. The Memorandum known as Memo. 62/Foods, issued by the Ministry of Health in 1922, did a great deal to bring about a certain amount of uniformity throughout the country. It was most useful in indicating what tuberculous carcasses should be totally condemned and what portions of affected carcasses might be passed for human consumption, but we must not feel that we are secure as regards uniformity owing to this useful start. Much greater uniformity will be attained when all our inspectors are submitted to the same form of training, have a better knowledge of the pathology of disease and a wider one in the practical handling of diseased carcasses in the slaughterhouses. It is regrettable to have to admit that under conditions obtaining throughout the country even at present, a carcass which will pass as fit and wholesome in one district will not pass as such in another district.

Owing to the method of training necessary and the qualifications required to become a meat inspector in Scotland, as well as in most of the continental countries, a more uniform standard of inspection is carried out in those countries, whereas in England any person, even to-day, may be authorised and appointed by the local authority to the post of meat inspector. I would again emphasise the fact that a local authority is responsible for the actions of its inspectors in carrying out the duties under the Meat Regulations, and, that being so, one would expect greater care in the appointment of such inspectors.

CONDEMNATION OF MEAT

Under Sections 116 to 119 of the Public Health Act, 1875, if an inspector finds any foodstuff as mentioned in those sections, being diseased, unsound, unwholesome, or unfit for the food of man, he may seize and carry it away, in order to have it dealt with by a justice. The justice may give an order for destruction and the meat or other food must then be immediately destroyed. The position of the justice in this case is merely a nominal one, as he is not supposed to have a scientific knowledge of the condition of the meat, or whether it is actually fit or unfit for the food of man. In practice, seizures are made where it is considered that the owner has the meat deposited or exposed for sale with a view to disposing of it for human consumption, but, generally speaking, where large quantities of meat are found unfit and dealt with, the meat is not formally seized and submitted to a magistrate, but is surrendered by the owner to the local authority.

At the time of the introduction of the 1875 Act, meat which was considered unfit for human consumption had not any appreciable residual value, but, owing to modern developments in the handling of the by-products of meat, meat which was considered unfit was found to have a high manurial value, or after certain treatments was found to have a high feeding value for domestic food animals. The system of treating beef and other carcasses was very much developed during the Great War, and nowadays the carcasses of our food animals have a comparatively high residual value.

It is recognised that though a meat inspector may judge a carcass or other foodstuff as unfit for human consumption, the article, after such judgment, is still the property of the butcher. If the butcher or owner refuses to surrender the carcass and the local authority wish to keep control of it, they have no alternative but to make a formal seizure under the 1875 Act, and when this is done the carcass must be immediately destroyed. This naturally, in view of the high residual value, is an uneconomical and wasteful method of dealing with the carcass. Many local authorities nowadays in the case of offals and carcasses judged as unfit, treat such material in suitable plants for the recovery of the residual value, and such value, less cost of treatment, is handed to the butcher or owner of the carcasses and offal.

It is undoubtedly contrary to the spirit of the Meat Regulations and the aspirations of the progressive public health inspectors, for the local authority to lose control of such unfit foodstuffs, but, owing to the increasing residual value of these foodstuffs, there are many plants run by private firms throughout the country for dealing with unfit foodstuffs and slaughterhouse by-products. Butchers may obtain a higher

price from such private firms than from the local authorities for unfit meat, etc.

The difficulties in connection with meat which is judged unfit by the inspectors and with which judgment the owners agree, but the owners wish to recover the full residual value of the meat, were amply illustrated by the case which was heard at the assizes at Leeds in March last, when certain butchers in Sheffield claimed compensation for unfit meat which had been retained by the Corporation of Sheffield. I understand that in this case the butchers agreed that certain carcasses were not fit to be passed for human consumption, but wished to remove the same from the public abattoir and to sell them to a firm for conversion into meat meal, manures, etc. The Corporation wished to retain these carcasses, as they recognised it was a wise thing in the interests of public health not to allow diseased meat to be taken outside the public abattoir. All unfit meat at the abattoir was formally seized by the inspectors, submitted to magistrates and, of course, under the 1875 Act, had to be immediately destroyed. Thus there was a great pecuniary loss in connection with this meat. The butchers claimed compensation for the residual value from the Corporation. Mr. Justice Charles, who heard the case at the West Riding Assizes at Leeds, gave judgment and costs for the Corporation, who were the defendants.

In order that local authorities may keep control of what might prove dangerous food, which, if it came into the possession of unscrupulous people, might be sold for human consumption, it is the duty of the local authorities to see that the meat is dealt with in such a way that the butchers may get the highest price compatible with the economic conditions prevailing in the district, yet at the same time keep such control as to ensure that there is no possibility of the meat being re-sold for human consumption.

IMPORTED MEAT

The quantity of imported meat consumed in this country forms a comparatively large percentage of the total amount of meat eaten. Consequently the law relating to imported meat is as important as that relating to home-killed. During 1931 the following meat was imported into the country:—

	Tons.
Beef	600,300
Mutton	354,000
Pork	19,200
	973,500

Fortunately for us, it has been found by the importers of this meat that it is in the interests of their trade to send sound meat, and in order to further their interests in this way, those countries from which we principally obtain our supplies, namely, Australia, New Zealand, various countries in South America, Holland and Denmark, have made provision that all carcasses shall be examined by veterinary inspectors before they are allowed out of the country.

In order to give greater security, with regard to imported meat, to the consumers in this country, the Sale of Food Order of 1921 and the Public Health (Imported Food) Regulations of 1925 were introduced.

The Sale of Food Order, 1921, provides for the labelling of imported produce.

Under this Order, "meat" includes beef, mutton, lamb, pork and veal, but shall not include bacon or ham, or cooked, canned, or potted meat, sausages, or offals.

Under Part III of the Order, the labelling of imported produce is provided for as follows:—

"A person shall not expose for sale by retail any imported meat . . . unless the article bears at the time of exposure for sale a label with the word 'Imported' or with a word or words disclosing the country of origin of the article clearly printed thereon so as to be easily readable by the customers:

"Provided that where only imported meat . . . is exposed for sale on any slab, rail or counter it shall be sufficient compliance with the requirements of this clause if the slab, rail or counter bears in a conspicuous position such a label:

"Provided also that where all the meat for the time being on sale in any premises is imported, it shall be a sufficient compliance with the requirements of this clause if there is exhibited on the premises in a conspicuous position, and so as to be easily readable by the customers, a notice stating that imported meat only is on sale:

"Provided also that where pieces of home-killed and imported meat, not exceeding in any case 1 lb. in weight, are exposed for sale on a slab, tray or counter, the foregoing provisions of this clause shall not apply to the imported meat so exposed, provided that the slab, tray or counter bears in a conspicuous position a notice containing the words 'mixed home-killed and imported meat' clearly printed thereon."

In practice it is found that this is a most difficult Order to have carried out according to the letter of the law. In large retail butchers' shops, where joints are already cut up and exposed on slabs in the window and being constantly changed, and where "home-killed" and "imported" are sold from the same counter, it is difficult to ensure that all imported meat is properly marked, where the vendor is not particular as to the marking. If the public demanded home-killed meat in this country it would ensure that they had the article asked for, if the imported carcasses were marked in such a way that they could easily be identified by any purchaser.

Furthermore, as there is a large importation of chilled beef into this country at the present day, it is not always possible for an inspector to distinguish between joints of imported and

home-killed which have been kept in cold storage for some time.

Under the Public Health (Imported Food) Regulations, 1925, made by the Ministry of Health, provision is made with regard to the importation into England and Wales of food for sale for human consumption.

In these Regulations "meat" means pork, the flesh of cattle, any other edible part of a pig or of cattle, or a substance, compound, material, or article of which pork or the flesh of cattle, or any other edible part of a pig or of cattle is an ingredient.

These Regulations forbid the importation for sale for human consumption of any meat which has been examined by a competent authority and found not fit for human consumption. They further require that facility should be given to the medical officer of health of the district where the food is landed, for examination of foodstuffs that are imported.

"Prohibited Meat" under these Regulations includes any of the following kinds of meat:—

(*a*) scrap meat, that is to say meat which consists of scraps, trimmings, or other pieces (whether with or without bone), of such shape or in such condition as to afford insufficient means of identification with definite parts of a carcass, and which has not before importation been made ready for human consumption in the form of a sausage or other prepared or manufactured article of food;

(*b*) meat comprising the ribs or the abdominal wall from which the pleura or the peritoneum has been detached;

(*c*) the carcass of a pig having the head in its natural state of attachment to the carcass, but not having the submaxillary, pre-scapular, pre-crural, and popliteal glands in their natural position;

(*d*) a severed part of the carcass of a pig (including the whole carcass without the head) from which a pre-scapular, pre-crural, or popliteal gland has been taken out;

(*e*) the head of a pig without the submaxillary glands; and

(*f*) tripe (that is to say, any edible part of a stomach), tongue, kidney or other edible offal to which has been applied either (i) formalin, or a solution, or other preparation of, or comprising formic aldehyde; or (ii) a compound containing fluorine or boron; or (iii) salicylic acid, formic acid, sulphurous acid, or benzoic acid, or any derivative of any such acid.

"Conditionally Admissible Meat" means any of the following kinds of oversea meat which are not included under the "Prohibited Meat":—

(*a*) a severed part of the carcass of a pig (including the severed head and the whole carcass without the head) which has not been salted, cured, pickled, dried or smoked or otherwise prepared in the manner in which bacon or ham is ordinarily prepared, and from which no submaxillary, pre-scapular, pre-crural, or popliteal gland has been taken out;

(*b*) lard, dripping, edible tallow and similar rendered fats; and

(*c*) all edible parts of a pig other than (i) the head or other severed parts of the carcass, and (ii) the intestines prepared in the form of sausage casings.

It will be noticed, under the definition of "Meat," that it does not include the flesh of any edible part of ram, ewe, wether, lamb, goat or kid. Under the Public Health (Imported) Food) Amendment Regulations, 1932, which it is proposed shall come into force on the first day of January, 1933, the flesh of all sheep and of goats is included in the Imported Meat Regulations. It is very desirable that the flesh of sheep and goats should be included in these Regulations, as most of you who are inspectors will know that during the past few years we have been receiving a considerable amount of mutton in this country which is found to be affected with caseous lymphadenitis. The result of the Order will undoubtedly prevent the exportation from other countries to England of mutton carcasses affected with this disease, as, under the memorandum issued by the Ministry of Health in this country, animals affected with caseous lymphadenitis are considered as unfit for human consumption, and under Part II, article 6, of the Imported Meat Regulations, such meat will be forbidden to be brought into the country.

The Importation of Carcasses (Prohibition) Order of 1926 prohibits the landing in Great Britain of the carcass or part of the carcass of any cattle, sheep, pigs or goats, which also includes meat, hides, skins, hair, bones, bone meal and dried blood, or any other part of the carcass separately or otherwise or any portion thereof, from any country on the continent of Europe, other than Ireland, Channel Isles and Isle of Man. Exception is made in the case of:—

(*a*) fully cured bacon and ham, lard or rendered fat, cooked or preserved meats or meat essences;

(*b*) hides and skins which have been dried or wet-salted; but hides and skins which have been wet-salted shall be accompanied by a certificate signed by a duly authorised officer of the Government of the country in which the port of shipment is situated, to the effect that he is satisfied that the hides or skins have been wet-salted for a period of fourteen days. Such certificates shall be delivered to an officer of Customs and Excise at the port of landing.

The effect of this Order undoubtedly tends to prevent the introduction into this country of foot-and-mouth disease.

The time is now ripe for the passing of a special Public Health Act in connection with food supplies for England and Wales. The Public Health Act of Scotland and regulations made thereunder are so superior to the present legislation in England that it would form a good foundation for a new Act in which all the more useful clauses of the past Acts could be co-ordinated.

. . . . .

Mr. W. Jackson Young, F.R.C.V.S., opened the discussion, and at once expressed his entire agreement with the contents of the paper. Any curtailment of the food inspection service, he said, would be followed with disastrous results, and, emphasising the need for a great improvement in the training of lay meat inspectors, and for legislation designed to cover the whole field of the production and handling of food, he did not fail to impress upon the meeting that only veterinary surgeons were adequately equipped to supervise this work.

In Mr. Young's remarks one could not fail to perceive a tendency towards the idea of regional control of the meat inspection service directly under Governmental control, which has already been mentioned in another place.

A spirited discussion ensued, in which representatives of local authorities, medical officers of health, and sanitary inspectors, in addition to veterinary surgeons, took part. Tribute was paid to veterinary surgeons for their work in teaching and training meat inspectors, and the general feeling of the meeting was that whilst many authorities still fail to exercise their powers in relation to food inspection under existing legislation, there is urgent need for a complete revision and amendment of such legislation to bring it up to the needs of the present day.

The Section was attended by more than 160 people, including some leading veterinary officers, but it was disappointing to see such a small number of local veterinary surgeons present.

(To be continued.)

RECENT ADVANCES IN TUBERCULOSIS RESEARCH*

J. W. EMSLIE, B.Sc., M.R.C.V.S.

At the last meeting of this Association I read a communication from the Mayo Foundation on the subject of "No-lesion and Skin-lesion Tuberculin-reacting Cattle," and this paper is essentially an elaboration of that and allied matters. No claim to originality is advanced, nor should the contribution be regarded as an exhaustive scientific discussion of tuberculosis in all its phases.

What are those no-lesion and skin-lesion tuberculin-reacting cattle? In the United States of America and in Canada it has been found in many parts that, coincident with a decrease in the number of cases of typical bovine tuberculosis, there has been a substantial relative increase in the number of reactors that have shown, at autopsy, either no tuberculous lesions at all or structural changes confined to the skin and subcutaneous tissues. Such subjects appear to react best to the intradermal test and some have even failed to react to the subcutaneous and the ophthalmic tests. Furthermore, those cases have appeared in herds which have been for some time free from tuberculosis as indicated by the tuberculin test and which have had no known contact with tuberculosis. A peculiar, and perhaps significant, observation is that surgical removal of the skin-lesions is followed by negative reaction to subsequent tuberculin tests.

The skin-lesions take the form of nodules which vary in size from that of a pin-head to that of an ordinary hen's egg. They are mainly subcutaneous in location but some may be confined to the skin itself. An appreciable number have yielded gross evidence of external communication either open or closed. Three main types of nodules have been recognised, *viz.*, (*a*) those composed of granulation-tissue without visible necrosis; (*b*) those with central necrosis but no calcification; (*c*) those exhibiting central necrosis and calcification. The two latter types of nodules generally contain a thick, semi-fluid, odourless material that varies in colour from greenish-yellow to orange. Similar necrotic material may be found in dense cords which not infrequently connect together several nodules.

In regard to the etiology of those skin-lesions, no definite opinion is yet possible but many enlightening discoveries have been made. In the great majority of cases microscopical examination has revealed organisms which were either strongly or faintly acid-fast. In one or two instances true bovine tubercle bacilli were recovered, but in all other cases the isolated

* Presented to the West of Scotland Division, N.V.M.A., at the Glasgow Veterinary College, June 22nd, 1932.

strains were culturally or biologically separable from *B. tuberculosis*. Those organisms have failed to provoke tuberculous changes in the rabbit, guinea-pig, chicken, cow, and, in some cases, the pig. Thus, for the present it may be said that the causative factor of the skin-lesions and one capable of stimulating a reaction similar to the tuberculin-reaction may be any or all of the following organisms:—

(i) true tubercle bacilli;
(ii) contaminating saprophytes, *e.g.*, timothy grass bacillus and the dung bacillus;
(iii) Preisz-Nocard bacillus, *i.e.*, the causal agent of caseous lymphadenitis in sheep; and
(iv) bacillus of Johne's disease.

Aside from causation, two other observations are noteworthy. One was the discovery of larvæ of the ox warble fly in certain cultures from subcutaneous lesions and this has prompted the question: Can such larvæ carry infection into the subcutaneous tissues? The other was that skin-lesions clinically identical with those occurring in cattle were found in wild deer which showed as well internal lesions resembling those of caseous lymphadenitis in sheep.

GENETICS OF TUBERCLE BACILLI

Petroff, in Poland, and later other workers, have succeeded in demonstrating from among both avian and bovine tubercle bacilli two distinct genetical strains, *viz.*, rough and smooth. The latter are small, pleomorphic organisms which are faintly acid-fast and possessed of a high degree of virulence. The former or rough variants are strongly acid-fast, large and beaded, *i.e.*, similar to the classical morphological forms we are wont to search for in a specimen, and are relatively much less virulent than the smooth strains.

The importance of this discovery lies in several directions. Firstly, in the microscopical examination of tuberculous material particular care in the staining must be taken lest many of the smaller slightly acid-fast organisms be over-decolourized and so pass undetected. Secondly, as well as a computation of the number of tubercle bacilli present it is equally important to estimate the relative percentage of the different morphological groups occurring in the specimen. Thus, if the long, beaded, strongly acid-fast forms are found it can be reasonably surmised that the disease is of a chronic and relatively quiescent nature. On the other hand, active and progressive tuberculosis is generally associated with the presence of faintly acid-fast granular or cocco-bacillary forms.

A third important aspect of this variation in form is in its relation to bacterial preparations for either prophylactic or curative purposes. Whilst Petroff found that the majority of the variants grew true to type, in one or two instances virulent strains were found in supposedly pure avirulent types. Whether this represents a reversion of type or merely an accident is not known and a definite answer to that question may yet have an important bearing upon vaccination with living avirulent cultures.

PATHOGENICITY OF THE VARIOUS TYPES OF ACID-FAST BACILLI

Acid-fast bacilli have been divided into two main groups, *viz.*: (*a*) those which are saprophytic, and (*b*) those which are pathogenic. In the saprophytic group we have the timothy-grass bacillus, the mist or dung bacillus, and the butter bacilli. In the pathogenic class are found the tubercle bacilli, the bacillus of Johne's disease and, in human beings, the bacillus of leprosy and *B. smegmatis*. Others worthy of mention are the bacillus of rat leprosy and an acid-fast organism which has been found in mud and in frogs and has been occasionally associated with a tubercle-like disease of fishes.

In regard to the recognised pathogenic strains, it is now generally accepted that the human type of the tubercle bacillus is pathogenic mainly for man, that it may occasionally attack pigs, that it is of minor etiological importance in tuberculosis of horses, cattle, goats, and sheep, and that to it fowls are resistant. The bovine strain is endowed with marked pathogenic powers for many species. It is an almost universal cause of tuberculosis in cattle; it is the responsible factor in almost all cases of tuberculous disease in horses, sheep and goats; and it is prominent in progressive generalised tuberculosis of pigs. In man its action is in a measure limited and influenced, *inter alia*, by the factor of age since it most commonly affects children up to 10 years old and very rarely those over 16 years of age. The avian type is pronouncedly pathogenic for poultry but appears to have as well a certain pathogenicity for several mammalian species, notably swine and cattle and, to a lesser extent, horses, sheep, rabbits, goats, and man. Avian tubercle bacilli have been found to infect as well mice and rats, which species are considered to play a not unimportant part in the transmission of the disease to poultry, and there was recently reported a case of extensive tuberculosis in a deer caused by the avian tubercle bacillus. Apropos of rodents it is pertinent to remark that in rats in many parts of the world there occurs naturally a disease which is similar in many respects to human leprosy and is associated with an acid-fast bacillus. Finally, a recent series of experiments affords food for reflection upon the subject of the transmissibility of the bacillus of Johne's disease to fowls.

And what of the saprophytic acid-fast organisms? It has been said that the harmless

timothy-grass bacillus was ingested by herbivorous species and that within the animal body it adapted itself so that it could live, flourish, and produce disease. More recently it has been shown that human tubercle bacilli can be modified by passage through cold-blooded animals, *e.g.*, the frog, so that they grow well at room temperature, whilst some workers claim that by repeated animal passage they have so enhanced the virulence of saprophytic acid-fast bacteria that the latter behave like tubercle bacilli.

The problems that arise out of what has been said are numerous and varied. Are we right in adhering rigidly to the arbitrarily chosen types of acid-fast bacteria? If the theory of transmutation of saprophytic acid-fast organisms into pathogenic forms is accepted, must we accept those saprophytes as a perpetual source of later tuberculous infection in all animal species? In regard to the established strains of tubercle bacilli are we entitled to continue in the belief that each type produces a certain kind of lesion in a given animal species within a given time? Or, must we regard those strains as one tubercle bacillus whose virulence and pathogenicity has become altered in slight degree by prolonged sojourn in individuals of slightly different animal species? It is an accepted fact that avian tubercle bacilli can establish themselves in the bovine body there to produce benign and non-progressive lesions. One wonders how soon a change may occur and cattle suddenly become more susceptible to the avian strain. One wonders, too, if it is possible to eradicate tuberculosis from one species without eradicating it also from all other species. Furthermore, what of the biological products of tubercle bacilli and, in particular, tuberculin? Does bovine tuberculin introduced into an animal disclose only cases of infection by the bovine strain, or will the animal react if it has been infected by any other acid-fast organism? Is that the explanation underlying the no-lesion and skin-lesion tuberculin-reacting cattle? Some recent work has suggested that a positive reaction to avian tuberculin does not necessarily indicate an infection with avian bacilli but may be a group reaction to infection with mammalian types of bacilli. And if we recall that avian tuberculin has been advocated for the diagnosis of Johne's disease, which is at present regarded as a morbid entity quite separate from tuberculosis, one feels that there is definite and urgent need of more specific and more selective tuberculins.

THE FILTERABLE FORM OF THE TUBERCLE BACILLUS

As long ago as 1910 Fontes in Rio de Janeiro announced that he had succeeded in demonstrating a filterable form of *B. tuberculosis*. For twenty years that discovery went largely unheeded until important confirmatory knowledge was forthcoming, and to-day it is an established fact that the tubercle bacillus in a filterable form may exist in cultures and in tuberculous products. That particular form appears to be generally of slight virulence and its inoculation into guinea-pigs is usually followed by some degree of hypertrophy of the lymphatic glands and enlargement of the spleen. In some cases the virulence of filtrates has been enhanced by animal passage, and occasionally in cultures from filtrates organisms have been obtained which were non-acid-fast but later became acid-fast. Although most of the work on this subject has been done with tuberculous material and cultures of human origin, it is important to note that a filterable form of *B. tuberculosis* has been demonstrated as well in milk from cases of bovine mammary tuberculosis, in cultures of avian tubercle bacilli, and in tuberculous material of canine origin.

Discussion

Major J. G. McGregor, in opening the discussion, thanked Professor Emslie for his very able paper and said that while he, Professor Emslie, did not claim originality for its contents, it was nevertheless a most complete summary of all the work that has been done. The facts as set forth, were in the nature of a bombshell and gave one food for serious thought, and he did not think that justice could be done to the subject at that one sitting. Many years had elapsed since Fontes had propounded his theory of a filterable virus for tuberculosis. Other workers at that time were inclined to scoff. Calmette was now confirming Fontes' work and they must accept the fact that a filterable virus for tuberculosis did exist.

The fact of there being rough and smooth types of bacilli came as a shock to those engaged in carrying out Calmette inoculations and the Americans claimed that the breakdowns in the B.C.G. vaccinations were due to this.

The intradermal test, while being in many ways excellent, was not proving the boon that many of the earlier exponents claimed it to be. The doubtful or border-line cases were difficult to interpret by pain, heat, and œdema, those cardinal symptoms being absent in many cases that still gave rise to doubt in one's mind. Professor Emslie's paper only served to show them the many factors which complicated the question at present.

While it was sometimes difficult to explain to the lay mind the discrepancies in the test there was no doubt that its use went a long way towards the cleaning up of tuberculosis in our herds; and for that reason should be presevered with. It might be of interest to recall that a "skin lesion," such as described in the paper, was at one time examined in the Royal (Dick) Veterinary College, and while no bacilli were found, giant cells were, and histologically the sections had the appearance of a tuberculous nodule *minus* the tubercle bacillus. He again thanked the essayist and promised his co-operation in the search for so-called "skin-lesions" in herds believed to be tubercle free.

Professor G. W. Weir thanked the essayist for his most instructive paper, which had given him a good deal of food for thought; no doubt when he had time to read it at leisure he would be able to appreciate just how much it really meant and

what a vast field of research was yet to be ploughed. His experience of the tuberculin test had not been so extensive as many of those present, but he certainly had difficulty in his own mind in assessing the "border-line" reactions.

Mr. P. Meikle thanked the essayist for his interesting and provocative paper. He was inclined to wonder if the tuberculin might not be the cause of some of the skin lesions and thought that tuberculin ought to be under Government control. In his experience, the skin lesions persisted for periods varying from months to years. Would cattle react to an infection with the timothy grass bacillus?

Dr. A. W. Whitehouse said that, while he had nothing to add to the discussion, he was pleased to be present to listen to Professor Emslie's paper, summing up the work being done in connection with tuberculosis. Dr. Feldman was an old pupil of his in the States and had written to him; he, in turn, had passed the inquiries on to Professor Emslie, and he could only thank the essayist for his very able paper.

The President (Professor W. Robb) added that somewhat similar difficulties in interpreting the mallein test were being experienced just now. It had been found that the mallein was at fault, fresh strains now being very difficult to obtain.

Biological tests, of course, could not be expected to be 100 per cent. efficient and it was unfair to condemn them because of a few errors. The intradermal test had many good points.

Mr. Jas McDougall thanked the essayist. At the outset of the paper he was intrigued, now he was mystified. That paper, which was only touching the fringe of the subject, opened up vast possibilities. Meantime, however, he was a staunch supporter of the intradermal test.

Professor Emslie, in his reply, thanked the members for their patience and apologised for the apparently technical nature of the paper. No test could be accurate always in the realm of nature. He hoped, however, that he had been sufficiently clear to enable practitioners to feel that there were more reasons for doubtful reactions than bad technique.

H.M. STATIONERY OFFICE PUBLICATIONS

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Clinical Communications

ULCERATIVE CELLULITIS

T. A. B. COCKSEDGE, M.R.C.V.S.

C.V.O., Veterinary Department, Burao, British Somaliland

During the last five years there have been more or less isolated outbreaks of this disease in this country; in 1928, it almost took the form of an epidemic in one area.

Having seen a considerable amount of the disease during the War, and having grown rather sceptical as to the success of any treatment, also because the literature on the subject was not very encouraging, I must admit that on first having cases in this country, I was inclined to consider the bullet the best treatment. However, having one or two cases in comparatively valuable animals I was loth to destroy without giving treatment a fair chance, with the result that after five years of treating cases, I am satisfied that the treatment now carried out in this Protectorate is successful and practical.

My reason for now giving a record of the method of treatment is that the last case I have treated—a pony brought in from Abyssinia and which had been infected for over two years—is now, after six months, entirely free, treatment having been continued for the first two months after the case was reported. The result of this case, taken together with the curing of many recent cases, gives a feeling of security as to the method being efficient.

The treatment is simple but needs thoroughness. The legs are thoroughly washed and cleaned, all hair around open ulcers or nodules being removed with scissors. All ulcers or nodules are now covered with "Ouataplasm," soaked in saline solution and covered with oiled silk and bandages. Saline solution should be poured into the top of the bandage every six hours and the whole dressing kept thoroughly damp, and not removed for 48 hours.

On removal the ulcers will probably be found to be clean and healthy looking, and the greater number of the unopened nodules to have shed the superficial skin and to be in the first stages of ulceration.

All clean healthy ulcers should now be covered with lint or gauze soaked in saline, the first part of treatment being continued on those not yet commencing to heal.

All the dressings should be kept thoroughly damp by addition of saline when necessary, and I find it is unnecessary to renew dressings more often than every 48 hours.

One must not be discouraged by recurrencies of fresh ulcers on the leg or legs being treated, or even outbreaks on another leg; continue and

persevere, and if the cases are reasonably recent complete cure will be effected in a month to six weeks. As stated above, even very old cases may respond to treatment. In the final stages any nice clean dressing powder with a basis of boric acid should be used.

I have combined with surgical treatment several medicinal tonics, but I think they are unnecessary and of little value.

At one time I tried sea-bathing, but find that normal application of saline solution, as laid down above, with thorough attention to detail, is the most satisfactory method.

The use of "Ouataplasm" may be objected to by some, on the ground that it is a "proprietary remedy," but it is very handy to use and has the "drawing" effect. Possibly impregnated wood-wool tissue would have the same effect and one might improvise nice compresses.

* * * * *

NON-SPECIFIC THERAPY IN CANINE PRACTICE

D. MOSSINSON, M.R.C.V.S.,
S.P.C.A. Hospital, Jerusalem

Being advised by a fellow practitioner to use "Omnadin" (Bayer's Product) in cases of pyrexia, I tried this preparation. "Omnadin" is described by the manufacturers as being a non-specific vaccine containing the three reactive groups—albumen, lipoids and fat. In the following notes, I am selecting a few cases out of my diary, where the high temperature was due to different causes, and I shall give short history, symptoms, treatment and results, paying special attention to the action of "Omnadin." I intentionally have selected cases where I have used no other medicines but "Omnadin," or such medicines as would not influence the course of the disease to any great extent.

I would like to draw attention to case No. 1, as I have had many similar cases since. I believe these cases to be distemper, although the diagnosis has not been confirmed by biological methods. My opinion is that the distemper virus is less virulent in Palestine than it is in Britain—although death from distemper has been reported to me. In the fatal cases of which I heard, professional advice had been sought too late. I am led to wonder whether "Omnadin" would give the same satisfactory and spectacular results in Britain as here in Palestine.

So far, I have had only one case in which I had to repeat the injection on the third day, so as to bring the temperature down to normal.

Case 1.—Pointer bitch, six weeks old.

On examination the temperature was 104·1° F. and there were catarrhal conjunctivitis and slight nasal discharge. The appetite was bad and the puppy listless.

Diagnosis: Distemper.

Treatment: I injected 2 c.c. of "Omnadin" subcutaneously and advised a light liquid diet. The same afternoon the temperature dropped to 102° F.

Second Day.—Temperature was 101·5° F.; appetite had returned and the puppy was lively.

Third Day.—Puppy was normal, appetite good and catarrh had disappeared.

(The same owner had lost a puppy with similar symptoms some months before.)

Case 2.—Alsatian puppy, two months old; one of a litter of five.

It had had bad appetite for two days and there were eczematous patches on belly and back and slight catarrhal conjunctivitis. The puppy was also very listless and had a temperature of 103·4° F.

Tentative Diagnosis: Distemper. I wanted to see whether other members of the litter would become infected before confirming this diagnosis. No worms were seen by the owner.

Treatment: 2 c.c. "Omnadin" subcutaneously given and "Odylen" prescribed for skin condition.

Second Day.—Temperature was normal, skin condition much better, appetite improved and eyes clear. Two other members of the litter developed eczema—but no temperature. All puppies were covered with fleas. I advised the owner to get rid of the fleas and to watch for worms in the fæces.

Third Day.—Puppy was quite normal and the eczema had nearly disappeared. The other puppies remained normal.

Ten days later the owner reported that he had seen ascarides in the fæces. Treatment was given and a large number of worms were passed by all puppies.

Case 3.—Alsatian puppy, four months old.

The puppy was admitted to the hospital because of variable appetite and listlessness. The temperature was 103·6° F. Injection of 2 c.c. "Omnadin" was given.

Second Day.—The temperature was normal and appetite had improved.

Third Day.—Worm medicine was given against ascarides and there was a passage of many worms within one hour.

Fourth Day.—The puppy was quite normal and lively and the case was discharged.

Case 4.—Spaniel bitch; 12 months old.

This case was admitted on account of listlessness, loss of appetite and nasal catarrh. The temperature was 104·5° F. On auscultation increased respiratory sounds were heard over the whole of the left lung and slightly so over the right lung. Pulse accelerated. Respiratory trouble was anticipated. 2 c.c. of "Omnadin" were injected subcutaneously and medicated steam inhalation and a light diet were advised.

(*Concluded at foot of col.* 1, p. 940.)

Report

MINISTRY OF HEALTH †

H.M. Government, as some compensation for inability to relieve the income tax payer, might effect an educative and disarming coup by presenting each one with a copy of this report as a remarkably telling reply to the universal question "What do we get for our money?" It is safe to say that no other Government Report represents more value for monies voted: the activities of the Ministry of Health touch, not only our pockets, but almost every aspect of our communal life, and literally in a vital way.

The subjects dealt with in the Report fall under the main heads of Public Health, Housing and Town Planning, National Health Insurance and Contributory Pensions: this review is, of course, concerned with the first, and, under it, none is of greater interest and importance than that section which deals with the inspection and supervision of milk.

The most striking fact which emerges from a consideration of the tabular statement of the number of licences in operation in England on March 31st in each of the past three years is that pasteurisation is gaining ground.

The statement is as follows:—

	1930	1931	1932
Principal Licences:			
Certified milk	152	165	188
Grade A (Tuberculin Tested) milk	188	195	212
(Including cases in which the milk is bottled at the farm)	43	44	60
*Grade A milk	498	547	620
*Pasteurised milk	162	209	234
Bottling Licences (for premises other than farms):			
*Grade A (Tuberculin Tested) milk	161	159	207
*Grade A milk	305	321	367

* These licences are granted by Local Authorities and the figures are those reported to the Ministry.

† Thirteenth Annual Report of the Ministry of Health, 1931-32. Presented to Parliament June, 1932. H.M. Stationery Office. 5s. net.

These figures also show that the total number of farmers licensed to sell Certified or Grade A (Tuberculin Tested) milk has increased during the year from 360 to 400. There has also been a large increase in the number licensed to sell Grade A milk.

Reference was made in last year's report to the difficulty still experienced by some veterinary surgeons in the technique and interpretation of the double intradermal test, and to the assistance given by Professor Buxton, of the Institute of Animal Pathology, Cambridge, in connection with re-tests in selected instances of herds licensed for the production of Certified or Grade A (Tuberculin Tested) milk. Early in the present year Professor Buxton found that on account of the claims of other work upon the time of his staff he was unable to continue this work, and the Minister has accordingly appointed a Consulting veterinary surgeon for this purpose. During the year under review this officer has carried out re-tests of five licensed herds (comprising 298 animals) in collaboration with the veterinary surgeons engaged by the licensees. "The results have shown that the interpretation of the test previously adopted had not always been sufficiently strict."

The number of samples of milk analysed by public analysts was 70,201, which is the highest recorded. The number reported to be adulterated or not up to standard was 4,507, or 6·4 per cent., as compared with 6·6 per cent. in the previous year and 7·8 per cent. in 1929. It is also the practice of some Food and Drugs Authorities to have a substantial number of milk samples tested informally, but statistics of these are not available.

The number of "appeal to cow" samples, *i.e.*, samples taken immediately after milking, was 741, and 290 of these, or 39·1 per cent., were not up to standard. This high percentage is attributed to the fact that these samples are taken at farms the milk from which has previously been sampled while in course of transit to the consumer and found to be below standard. Omitting "appeal to cow" samples, the number of samples analysed was 69,460, and the number reported as adulterated or below standard was 4,217 or 6·1 per cent.

In 27 samples of milk the presence of visible dirt was reported and 17 were found to contain colouring matter. The presence of formalin was reported in five samples and in one boron preservative was present. In one instance in which the sample was reported to be 8·7 per cent. deficient in milk fat and also to contain colouring matter and formalin, fines and costs amounting to £23 0s. 6d. were imposed on the vendor.

Graded milk was reported to be deficient in milk fat or other milk solids in six instances.

Second Day.—The temperature had dropped to 102·5° F. and appetite had improved. The heart-beat was normal. Increased sounds were only heard over a circumscribed area of the left lung; the right lung was clear. The nasal catarrh was very slight.

Third Day.—The bitch was reported by the owner to be normal.

I have also used "Omnadin" for large animals with good results, but the cost of such a large dose (30 c.c.) is prohibitive in ordinary practice.

The report proceeds to draw attention to the memorandum, issued early in the year under review, on Bovine Tuberculosis in Man with special reference to infection by milk (Reports on Public Health and Medical Subjects. No. 63), which aims at presenting a general outline of the position in this country with regard to tuberculosis due to bovine infection, the incidence of tuberculosis in cattle, and the estimated percentage of milk from animals infected with the disease, together with a review of practical remedial measures. "The difficult and complex problems which are involved in this matter are receiving the attention of the Ministry in conjunction with the Ministry of Agriculture and Fisheries."

It is of interest to note that, earlier in the report, the Minister includes "the need for more sampling of milk for ensuring cleanliness or detecting the presence of tubercle bacilli" as among the matters the remedying of which ought not as a rule to be beyond the competence of a local authority interested in the maintenance of its health services.

Concerning methods for the treatment of tuberculosis, the report states:—

"The investigation of Dr. Camac Wilkinson's method of treating tuberculosis by tuberculin, to which reference has been made in recent reports, is still in progress.

"In January, 1932, the Minister received from M. Spahlinger a copy of his statement, as issued to the press, regarding his method for the preparation of antigens with detailed reference to tuberculosis. The method is stated to be applicable to the production of antibodies against other infections than tuberculosis. Copies of the statement were referred by the Minister to the Medical Research Council and other research bodies."

Included in a review of the activities of the Department in connection with the League of Nations Health Organisation is a reference to the reports received by the Permanent Commission on Biological Standardisation on the trials made by investigators in different countries of preparations of vitamins previously distributed by the National Institute for Medical Research, carotene (for Vitamin A), irradiated ergosterol (for Vitamin D), and preparations of rice polishings (for Vitamin B_1). In the result similar preparations were adopted in each instance as international standards,† and the National Institute of Medical Research has been requested to act as a central laboratory for their preparation or distribution.

W. B.

† Particulars concerning these international vitamin standards are published on page 942.—Ed., *V.R.*

Abstracts

[Le alterazioni del Sangue nella Distomatosi Epatica degli Ovini. Macchioni, G. *Nuova Veterinaria.* Anno. X. No. 5. pp. 5-12. 3 figs, 2 text-tables. May 15th, 1932.]

From his investigations on a considerable number of sheep, Macchioni concludes that *Fasciola hepatica* causes a serious anæmia in which the red cells are reduced in number from about 12½ millions to less than half this number —sometimes sinking to three-and-a-half millions per c.mm. This is associated with changes in form, volume and chromatophilic reaction of the red cells. In more marked cases, immature erythrocytes appear in the blood, represented by Jolly's bodies, and, more rarely, Cabot's bodies. There is a considerable increase in white cells (except lymphocytes, which are reduced to about a third of the normal number). The higher percentage increases are found in the transitional forms, the basophiles and eosinophiles. Eosinophilia is not always proportional to the degree of infection, but is always present. Thrombocytosis is frequently very marked, almost always characterised by the presence of giant platelets.

T. W. M. C.

* * * * *

[On the Sedimentation Test in the Horse. (Trans. Title.) Nilsson, K. S. (1932). *Sv. Vet. tidskr.* 252-256. 1 fig.]

The writer investigates the clinical application of the test for the rate of sedimentation of blood corpuscles. The factors known to govern and modify the test are reviewed and the author's technique as applied to the horse (figure showing sedimentation tubes) is described. Tests on 100 horses showed no differences in the blood in health or disease. It was found, however, that the total sedimentation after 24 hours was directly proportional to the number of blood corpuscles, and thus, in the horse, the test could be used for their estimation, a direct reading being obtainable with graduated tubes. Using this method, a study was made of the red corpuscular count of jugular blood of five horses which were set to work after a period of rest. An increase of 1-2·2 millions was noted in all cases, this occurring generally during the first five minutes.

G. B. B.

* * * * *

[Uterine Rupture in the Cow caused by Fœtal Movements. (Trans. title.) Heijbel, H. (1932). *Sv. Vet.-tidskr.* 7. 260-261.]

The author describes an instance of rupture of the uterus in a cow caused by movements of an abnormal fœtus. The cow, about eight years of age and in advanced pregnancy, was taken suddenly ill. The symptoms exhibited were

groaning, abdominal rigidity and rapid respiration; temperature 39·8° C.; pulse 96. Vaginal examination:—cervix closed. Rectal exploration revealed a tense non-fluctuating condition of the uterus, the walls of which were closely applied to a large dilated fœtus; no fœtal movements were detected. The cow died within a few hours. The writer, at *post-mortem*, found a circular rupture of the uterus some 6 cm. in diameter in the roof of the gravid right horn of the uterus about 30 cm. from the tip. The hind feet of the fœtus lay immediately within the perforation. The majority of the fœtal fluids had escaped into the peritoneal cavity by way of the rupture and considerable hæmorrhage had occurred. The fœtus was fully developed, but was of pronounced rachitic type with short bent extremities and ankylosis of the joints. It had died with the escape of the fluids and decomposition had commenced. Death of the mother was caused by septic peritonitis. The uterine wall was normal in appearance and development. The fœtus lay in the anterior position but with the legs projecting upwards and outwards. The author postulates that in this position a kicking movement had occurred in the hind limbs and these, being rigid and unable to bend in conformity with the shape of the womb, had perforated the wall. G. B. B.

International Vitamin Standards

The following statement has been prepared and circulated to the medical and scientific Press with the object of making known to all those interested that the international standards for the vitamins A, B_1, and D, recently adopted by the Health Organisation of the League of Nations, are now available for research workers, laboratories, and institutions in Great Britain and Ireland.

In June of last year, under the auspices of the Permanent Commission on Biological Standardisation of the Health Organisation of the League of Nations, a conference of experts was held in London with the object of discussing the possibility of adopting standards and defining units for certain of the vitamins. As a result of their deliberations the conference made a series of important recommendations to the Permanent Standards Commission, and these are set out in the Report (No. C.H. 1055 (1)) recently published from Geneva. Briefly, the conference recommended the adoption of a standard, and the definition of a unit in terms of such standard, for the four vitamins A, B_1, C, and D. The conference further recommended that in the case of the two vitamins A and D the final preparation of the standard should be undertaken by the National Institute for Medical Research, Hampstead, and that the standard for vitamin B_1 should be prepared in Java. The National Institute at Hampstead was further nominated to act, on behalf of the Health Organisation of the League of Nations, as the central laboratory for the storage and distribution of the three standard preparations for vitamins A, B_1, and D. In the case of vitamins A, C, and D, it was recommended that the proposed standards and units should be adopted for a period of two years in the first instance, the standard for vitamin B_1 being given a preliminary currency of five years. In the case of vitamin C no preparation or storage of a stable standard was involved by the recommendation of the conference, which was satisfied, for this vitamin, to recommend the use of fresh lemon juice as a standard, and to define the unit as the antiscorbutic activity of 0·1 c.cm. of the juice, prepared according to a simple method described in the report.

Vitamin A

Carotene was recommended as the international standard for vitamin A, and the unit was defined as the vitamin A activity of 1 γ (0·001 mg.) of the standard preparation of carotene. Eight laboratories have contributed varying quantities of carotene, and these have been mixed at the National Institute for Medical Research; the mixed carotene has been purified by recrystallization until the melting point was above 179° C. The highly purified preparation has been distributed in 10 mg. quantities into small ampoules in an atmosphere of pure nitrogen, reduced to dryness, and the ampoules sealed.

Vitamin D

With regard to the international standard for vitamin D, the conference recommended that the standard solution of irradiated ergosterol, which has been issued from the National Institute for Medical Research, Hampstead, for the past two years, should be adopted as the international standard. On account of the fact that this standard preparation had been intended, primarily, for the needs of this country alone, it was considered desirable to prepare a larger quantity to meet the needs of other interested countries—nineteen in all—for a period of some years. Accordingly, a second and larger quantity of irradiated ergosterol has been prepared at the National Institute for Medical Research, and this has been assayed in terms of the original standard preparation. The comparative examination of the new and the original standard preparations has been carried out by eight different laboratories in five different countries, and these eight groups of workers are unanimous in agreeing that the new standard now available is exactly equivalent to the original standard. There is, accordingly, now available an adequate amount of this standard preparation of vitamin D to meet the requirements of all workers throughout the world for some years to come. The unit recommended for international use is defined as the vitamin D activity of 1 mg. of the international standard solution of irradiated ergosterol.

Vitamin B_1

The standard for vitamin B_1 recommended for international adoption is a concentrated preparation of the antineuritic vitamin B_1, adsorbed on kaolin. The standard has been prepared in the Medical Laboratory, Batavia, Java, and is stored at the National Institute for Medical Research, Hampstead, from which it will be distributed. The international unit has been defined as the antineuritic activity of 10 mg. of the international standard preparation. The standard preparation is very stable, and, provided it is protected from moisture, appears to retain its activity unchanged.

In the case of other countries, arrangements have been made to send suitable supplies of each of the above standards to approved national institutions for local distribution. Institutions or individual investigators in Great Britain and Ireland who wish to obtain supplies of one or more of these standards should apply to the Department of Biological Standards, National Institute for Medical Research, N.W.3, from which issues will be made at regular intervals.

N.V.M.A. Divisional Report

WEST OF SCOTLAND DIVISION*

MEETING AT GLASGOW VETERINARY COLLEGE

A meeting of the Division was held in the Glasgow Veterinary College on Wednesday, June 22nd, 1932.

The President, Professor Robb, F.R.C.V.S., occupied the chair, and the following members were present:—Professor G. W. Weir, Dr. A. W. Whitehouse, Professor. J. W. Emslie, Messrs. W. Watt, P. Meikle, P. McIntyre, R. Renfrew, A. Sillars, Jas. McFarlane, J. G. McGregor, Wm. Fergusson, H. H. Brodie, J. F. Taylor, D. Brown, J. Burgess, H. Begg, Junr., and A. Thomson, Hon. Secretary. The following visitors were present:—Adam Gibb (Motherwell), Esmond Brown (Edinburgh), A. Hart (Ardanadam) and a number of the senior students from the college.

Before the business of the meeting was commenced Professor Weir expressed his desire to extend to Professor Robb the sympathy of the Division in his recent bereavement in the death of his brother, Major Andrew Robb, who was also a member of the West of Scotland. Major Robb, he said, had been a very modest member, but had come forward on many occasions to demonstrate cases of surgical interest. While he might have been little known as a member of the Division, he was known to most of the members personally and held in high esteem by all. The members were upstanding for a minute in tribute to his memory.

The minutes of the last meeting, as printed in the *Veterinary Record,* were accepted as having been read, and adopted.

Apologies for absence were intimated from Mr. Lewis, of Campbeltown, and Mr. Taylor, of Edinburgh.

Membership.—Messrs. Adam Gibb (Motherwell) and Esmond Brown (Edinburgh) were nominated for membership, on the proposition of the Hon. Secretary, seconded by Professor Weir.

Report.—A report by the Divisional Committee recommending that the resolution with regard to the "Warranty of Cows Udders" be sent to the Secretaries of the Auctioneers' Institute and the Live Stock Association, was adopted.

PRESIDENT'S ADDRESS

The President, Professor Wm. Robb, delivered his presidential address, first paying tribute to Mr. Meikle, his predecessor in office. In view of the fact that he (Mr. Meikle) had a very busy country practice he had been a very regular attender, and he hoped that their retiring President would still continue to show this good example.

The question: "Of what use is a Veterinary Society?" was occasionally asked. The progress of the profession was intimately connected with a society of that kind; the individual benefited from the advice of its members in matters of difficulty, and the Society was one of the means of upholding their rights as a profession.

No excuse could be put forward for non-attendance, at least at some of the meetings throughout the year. Many of the busiest practitioners were the best attenders, because they realised that it was part of their duty, not only to the profession, but to themselves, to put in an appearance.

Professor Robb then gave a brief review of the past and present, and our prospects for the future, instancing the change which had taken place in the horse population, both in class and numbers, the type of horses used for carriage work being a thing of the past. He also showed how the Contagious Diseases of Animals Act had done away with such conditions as bovine pleuro-pneumonia, glanders, etc. Diseases were treated more intelligently now; as examples they could take the old and new treatment of milk fever, and the days of tr. opii for colic, compared with our present-day methods of stimulants, administered hypodermically, or per stomach tube.

Serum therapy had a wide field of usefulness. The President compared present-day methods of serum preparation with that of his first experience of vaccine therapy—pieces of worsted soaked in the exudate from the lungs of cases of bovine pleuro-pneumonia were passed through the cow's tail as a seton. The results were awful; necrosis of the tail set in and on one's next visit one went armed with a docking knife; in many cases the cows were left with no tails after repeated docking.

When it was considered what the profession had done in improving the health of the animal community of this country, by advocating and carrying out preventive measures against disease, supplying officers for the civil and military services, one would consider that it was a profession worthy of Government support. They knew, however, that the financial help given was far below that vouchsafed to many of their Continental friends.

They saw from the past that they had traversed a long and successful road to the present day. To-day small animal practice occupied a prominent position, and abdominal surgery was almost as common and successful in this domain as it was in the realms of human surgery.

To the future they must look with hopeful eyes. There would be a marked increase in the number of administrative posts, and who knew what revolution in veterinary science some of them might live to see?

Paper.—Following this, Professor Emslie read a very interesting paper, "Recent Advances in Tuberculosis Research," which was heard with

* Received for publication July 18th.

close attention by the members. [This paper is reproduced elsewhere in this issue.—Ed.]

A short demonstration of the use of the epidiascope was then given by Professor Emslie, several interesting photographs being shown on the screen and their main points of interest briefly outlined. One or two members had interesting photographs which were shown and described, while, to instance what other countries do for veterinary teaching, illustrations of the various departments of the Veterinary College at Onderstepoort were shown.

Dr. Whitehouse kindly intimated that if at any time the Division desired the use of the epidiascope he would be pleased to put it at their service.

The meeting terminated with votes of thanks to Professor Emslie for his paper and demonstration, and to Professor Robb for his conduct in the chair.

A. Thomson, *Hon. Secretary.*

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Aug. 15th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

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R.C.V.S. OBITUARY

Atkinson, Thomas Sumner, Douglas, Isle of Man. Graduated New Edinburgh, April 27th, 1886; died August 1st, 1932, aged 67 years.

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PERSONAL

Dr. W. W. Dimock, head of the department of animal pathology, college of agriculture, University of Kentucky, is paying a return visit to England at the invitation of Captain John Crawford, of the British Bloodstock Agency. The object of this trip is to repeat the programme inaugurated a year ago for the handling of breeding diseases at thoroughbred studs, and Dr. Dimock expects to visit some of the largest breeding establishments in England, Ireland and France, conferring with owners, veterinarians and managers.

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Marriages.—Jennings—Clark, at Old Milverton, on August 2nd, Mr. Sidney Jennings, M.R.C.V.S., youngest son of Mr. and Mrs. J. H. Jennings, of West Kensington, London, and Miss Dorothea Lucy Clark, M.A., elder daughter of Mr. and Mrs. M. M. Clark, of Brynkelyn, Emscote Road, Warwick.

Leckie — Rooney. — At St. Joseph's Church, Kilmarnock, on July 25th, by the Rev. P. Reilly, P.P., Knightswood, assisted by Very Rev. John J. Canon Sheehy, Peter R. Leckie, M.R.C.V.S., Stevenston, and Margaret Rooney, B.Sc., Dpl. R.T.C., Kilmarnock.

Scott Taggart — Locke. — August 4th, at St. Paul's, Heaton Moor, Raymond, younger son of Dr. and Mrs. J .Scott Taggart, of Heaton Moor, to Alice Marjorie, only daughter of Mr. and Mrs. G. H. Locke, of Manchester.

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THE LIVE STOCK IMPROVEMENT SCHEME

The Report on the Ministry of Agriculture's Live Stock Improvement Scheme for the year ended March 31st last is contained in the August Journal of the Ministry. Briefly, it is one of fairly satisfactory progress. In 1931, the steady development that was going on year by year was somewhat checked by the urgent need that arose for a reduction in national expenditure. Proportionate reductions were made as follows: instead of 1,600 grants for bulls 1,500 were approved, with a reduction in the annual grants to bull societies. Similarly, the number of grants in respect of boars was reduced from 1,100 to 1,000. The maximum direct grant to heavy horse societies was reduced from £60 to £40, and assisted nominations from £40 to £30. A relatively smaller saving was made in grants to milk recording societies, for in these, and as a rule, members find it very difficult to meet the cost of recording their herds. These grants were reduced from £3 10s. per herd for the first two years, and £3 thereafter, to £3 per herd in all cases.

The Report also contains a reminder that the interval of at least three years before the Improvement of Live Stock (Licensing of Bulls) Act is brought into force as regards licensing in England and Wales concludes on August 1st, 1934. The provision included in the Act, under which bulls rejected for licensing in Ireland are not to be moved alive out of the wharves when landed in this country, has resulted in 127 rejected bulls being slaughtered at the ports; *i.e.*, in the eight months of the operation of the provision up to March, 1932.

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THE ROYAL SANITARY INSTITUTE

The Autumn Session of training courses for Examinations for inspectors of meat and other foods, will commence on Monday, September 19th. Syllabuses of the lectures and of the examinations, containing full particulars, are obtainable from the Secretary of the Institute, 90, Buckingham Palace Road, London, S.W.1.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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X-RAY DIAGNOSIS OF NAVICULAR DISEASE

To the Editor of the Veterinary Record.

Sir,—Owing to the fact that the radiographs illustrating my article on Navicular Disease differ so greatly from the proofs submitted to me, I should be obliged if you would publish this letter so that members will be able to realise that the radiographs as published are valueless. In actual fact, the originals show clearly all those details mentioned in the text of my article.

I should never have consented to their publication, had I known that they were to be printed as they have been, and not as they were sent to me as proofs.

Yours faithfully,
V. Berwyn Jones.

The Wonersh Kennels,
near Guildford.
August 8th, 1932.